WHAT IS CLAIMED IS:

1. A telecommunications system having a protocol architecture over an interface between nodes of the telecommunications system, the protocol architecture including Internet Protocol as a protocol above a link layer protocol, wherein the interface is one of: (1) an interface between a core network and a radio access network which carries circuit switched connections; (2) an interface between a radio network controller (RNC) and a base station; and (3) an interface between two radio network controllers (RNCs).

2. The system of claim 1, the Internet Protocol is immediately above the link layer protocol in the transport network layer.

3. The system of claim 1, wherein the interface carries a circuit switched connection, and wherein a protocol stack of the protocol architecture in the transport network layer comprises:

the link layer protocol;

the Internet Protocol on top of the link layer protocol;

UDP Protocol on top of the Internet Protocol.

4. The system of claim 3, wherein the link layer protocol is Ethernet protocol.

5. The system of claim 4, wherein in the Internet Protocol a sequence number is carried in one of an IP option field and a Ipv6 extension header, the sequence number being used for rearranging incoming IP datagrams.

6. The system of claim 3, wherein the protocol stack of the protocol architecture further comprises, in a radio network layer, a frame handling protocol on top of the UDP Protocol.

7. The system of claim 6, wherein the frame handling protocol rearranges incoming frames over the interface which carries a circuit switched connection.

8. The system of claim 7, wherein the frame handling protocol includes a sequence number field used for rearranging incoming frames.

9. The system of claim 1, wherein the protocol stack of the protocol architecture in the transport network layer comprises:

the link layer protocol;

the Internet Protocol on top of the link layer protocol;

UDP Protocol on top of the Internet Protocol; and

XTP Protocol on top of the UDP Protocol.

10. The system of claim 9, wherein the link layer protocol is Ethernet protocol.

11. The system of claim 9, wherein each XTP packet has a connection identifier and a sequence number.

12. The system of claim 9, wherein plural user plane data frames are multiplexed in one IP datagram.

13. The system of claim 1, wherein the protocol stack of the protocol architecture in the transport network layer comprises:

the link layer protocol;

the Internet Protocol on top of the link layer protocol;

UDP Protocol on top of the Internet Protocol; and

UAL2 Protocol on top of the UDP Protocol, wherein the UAL2 protocol each UAL2-PDU carries an integer number of AAL2 packets.

14. The system of claim 1, wherein the protocol stack of the protocol architecture in the transport network layer comprises:

the link layer protocol;

the Internet Protocol on top of the link layer protocol;

UDP Protocol on top of the Internet Protocol; and

RTP Protocol on top of the UDP Protocol.

15. The system of claim 14, wherein the interface is between a radio access network and a core network, and wherein in the RTP Protocol one synchronization source (SSRC) identifier is allocated to each circuit switched connection between the node in the radio access network and the node in the core network.

16. The system of claim 14, wherein the RTP Protocol compresses plural RTP packets in an IP datagram.

17. The system of claim 1, wherein the interface carries a packet switched connection, and wherein a protocol stack of the protocol architecture in the transport network layer comprises:

the link layer protocol;

the Internet Protocol on top of the link layer protocol;

UDP Protocol on top of the Internet Protocol; and

XTP Protocol on top of the UDP Protocol.